



Longitudinal Buffer Space	
*Speed (mph)	Length Min (feet)
20	115
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570
65	645
70	730
75	820

- Notes
1. Advance signs for flagging should be installed when flaggers are present.
2. The advanced flagger sign and the speed limit signs shall be moved as the work area moves thru the construction zone. When the work area is not visible from the flagger, the flagger station shall be placed so the work area is visible. The 40 mph speed limit sign shall be spaced at $\frac{1}{2}$ A in advance of the flagger sign. The 60 mph speed limit sign shall also be moved. Upon completion of the work day or when workers are not present, the 40 mph speed limit and the Minimum Fee \$80 signs shall be covered or removed.
3. APPROACHES: When the work area encompasses an approach, the approach shall be controlled by installing a 40 mph speed limit sign. If this approach is on the side of the lane closure, the existing stop sign shall be covered and a new portable stop sign shall be installed. When the main line 40 mph speed zone is moved past the approach, the approach speed limit sign shall be removed.
4. Variables
 - S = Numerical value of speed limit or 85th percentile.
 - W = The width of taper.
 - L = Minimum length of taper, or $S \times W$ for freeways, expressways, and all other roads with speeds of 45 mph or greater, or $W \times S^2/60$ for urban, residential, and other streets with speeds of 40 mph or less.
5. Delineator drums, used for tapering traffic shall be spaced at the dimension "S". Tubular markers used for tangents shall be spaced at 2 times dimension "S".
6. Sequencing Arrow Panels
 - Panels should normally be placed at the beginning of the taper. Where shoulder width does not provide sufficient room, the panel should be moved closer to the work area so that it can be placed on the roadway surface.
 - Type A shall be used on roadways with slow moving traffic speeds and low volume (25 mph and 750 ADT or less).
 - Type B shall be used on roadways with moderate traffic speeds and volumes (40 mph and 5000 ADT or less).
 - Type C shall be used on roadways with high traffic speeds and volumes (over 40 mph and 5000 ADT).
7. The speed limit shall be re-established. The exact speed limit shall be determined in the field, dependent on location and conditions.
8. Existing speed limit signs within a reduced speed zone shall be covered.
9. Obliterated or covered pavement marking shall be paid for as Obliteration of Pavement Marking. The covering shall be approved by the engineer.

10. When warning signs are used in urban areas and the signs are not portable, flags shall be installed. The flags shall be 24 inches square, mounted perpendicular to the edges of the diamond sign, and at such a distance above the edge so that when the flag is limp it will not touch the sign. Rural areas will not require flags.
11. The reduced speed limit shall be determined dependent on the in place speed limit before construction. The speed limit reduction should not exceed 10 mph below the existing speed limit, unless the design speed of the work zone feature has been reduced below the 10 mph. In this case, the speed limit reduction shall not exceed 30 MPH. Where speed limits are to be reduced more than 30 MPH, a second speed limit sign shall be installed with the desired speed reduction but shall not exceed 30 MPH. The second speed limit sign shall be placed at $\frac{1}{2}$ B.
12. The contractor has the option of using portable sign supports in lieu of post mounted sign as shown on the standard drawings as specified in section 704.03 C.

ADVANCE WARNING SIGN SPACING			
Road Type	Distance Between Signs Min. (ft)		
	A	B	C
Urban - Low Speed (30 mph or less)	150	150	150
Urban - Low Speed (over 30 to 40 mph)	280	280	280
Urban - High Speed (over 40 mph to 50 mph)	360	360	360
Rural - High Speed (over 50 mph to 65 mph)	720	720	720
Urban Expressway and Freeway (55 mph to 60 mph)	850	1350	2200
Rural Expressway and Freeway (70 mph to 75 mph)	1000	1500	2640
Interstate/4-Lane Divided (Maintenance and Surveying)	750	1000	1500

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
08-01-92	
REVISIONS	
DATE	CHANGE
07-19-02	Reversed End Road Work & Speed Limit Sign
07-25-03	Rev R2-1, R2-1a & W20-
04-01-04	Rev. fee sign & warnin & buffer spacing Rev note 11
12-01-04	PE Stamp added
06-29-05	Revised W4-2, Replaced R2-5a with W3-5, Revis Adv. Warning table, Rev Note 11
04-05-06	Corrected Sign number W3-5
10-31-06	General Revisions

This document was
originally issued
and sealed by
MARK S GAYDOS
Registration Number
PE-4518,
on 10/31/06 and the
original document
is stored at the North
Dakota Department
of Transportation